M. M. Furniss
10-22-52

FOREST INSECT CONDITIONS

Miami Creek, Lewis Creek and Big Creek Drainages
Sierra National Forest
October 1952

APPRAISAL SURVEY

An appraisal survey was made of the Miami Creek, Lewis Creek, and Big Creek Drainages on the Sierra National Forest on October 6 - 11, 1952, by Myron S. Wall, Forester for the Yosemite Mountain Ranch, Dean F. Schlobohm, of the California State Division of Forestry, and Messrs. Malcolm M. Furniss, John F. Wear, and George L. Downing, under the direction of Ralph C. Hall, of the Berkeley Forest Insect Laboratory. This is the area where control of the mountain pine beetle was conducted by the use of toxic sprays during the spring of 1952. The purpose of the survey was to determine the extent and severity of damage to second-growth sugar pine by the mountain pine beetle in order to evaluate control results and furnish a basis for determining needs for further action.

The initial step in the survey was an aerial inspection of the general area by Messrs. Furniss, Wear, Wall, and Schlobohm, for the purpose of delineating areas which would justify ground checking. These delineated areas covered a total of about 1500 acres in the Lewis Creek, Miami Creek and Big Creek drainages (see map).

The aerial inspection was followed by ground sampling by Downing, Schlobohm, and Hall, using 1/4-acre circular plots established at 2-1/2-chain intervals on cruise lines run at 20-chain intervals, constituting a 5-percent sample. This system of sampling was designed to yield information on the number of currently infested trees subject to not more than a 25-percent sampling error at the 68-percent confidence level. Loss information on each plot was segregated into two categories; 1952 infested trees, and 1952 abandoned trees. Tree species and diameter were also recorded.

CHARACTER OF THE 1952 INFESTATION

The 1952 infestation is characterized by evidence of light epidemic loss in sugar pine caused by the mountain pine beetle. This is in contrast to the 1951 infestation which was heavy epidemic. There is still evidence of grouping tendencies in the 1952 infestation, but the groups are much smaller and the size of the trees attacked is slightly smaller than in the 1951 infestation.

ESTIMATED 1952 LOSSES

From the 349 1/4-acre sample plots cruised it is estimated that there will be a total of about 916 infested trees on 1480 acres which should be treated. These data are subject to a sampling error of about

25 percent at the 68-percent confidence level, which means that the expected minimum number of trees would be 686 and the maximum number would be 1146. The average diameter of the infested trees sampled was 9 inches d.b.h. The loss is distributed about as follows: On private ownership totaling about 840 acres, 520 trees (± 130); on Forest Service ownership totaling about 640 acres, 396 trees (± 100).

RESULTS OF THE 1952 SPRING CONTROL PROGRAM

A report was prepared by M. M. Furniss[1/] on the control program carried on during the early spring of 1952 against the 1951 overwintering brood of the mountain pine beetle. This control program showed a total of 2050 trees were treated on 1405 acres of all ownership. From the data obtained in the present survey, it is estimated that there are about 870 infested trees on the same area in 1952, which means a reduction in loss of about 60 percent brought about by control.

CONTROL RECOMMENDATIONS

It is recommended that the following action be taken:

1. A followup program of control on the 1405 acres in the Miami Creek - Lewis Creek drainage units to take advantage of the benefits already gained by control, and further reduce the threat of a resurgence of the outbreak.

2. Institution of a control program on the Big Creek drainage unit containing about 75 acres. This area was not treated last year, but as epidemic tendencies are evident, it should be included in the proposed program.

3. Control by toxic sprays on felled trees using ethylene dibromide 1 part, diesel oil 40 parts by volume applied at the rate of about 3 - 4 gallons per tree; treatment to be undertaken this fall, weather conditions permitting. All trees to be felled, bucked in convenient length for rolling, the top surface sprayed then rolled and the bottom surface sprayed.

4. A thorough job of spotting of all infested trees as soon as practical. Full advantage should be taken of favorable fall weather to get the job done before snow conditions slow up the work and run up the costs. A three-man spotting crew, consisting of a compassman and two spotters is suggested for both the private and federal ownerships; spotting strips not to exceed 1 chain per spotter in width because of the dense character of the stand and because spotting on a pitch-tube basis will be required.

1/ M. M. Furniss - Control of the Mountain Pine Beetle with Toxic Sprays on the Miami Creek and Lewis Creek Drainages, Mariposa and Madera Counties, California. Spring of 1952. Forest Insect Laboratory Report - September 4, 1952.

5. Spray tankers, 400-gallon capacity, be used in treating the felled trees. These are available from the Blister Rust Control project, and it is suggested that the U. S. Forest Service and the California State Division of Forestry use one each of these units. The use of stirrup pumps will not be necessary.

6. An attempt be made to contract at least part of the treating work on a trial basis. The office of Blister Rust Control has found through experience that the eradication of Ribes can be done satisfactorily and economically with contract labor. It is suggested that the land-managing agencies supply the tank truck, operators and spray material, but contract the labor. There are indications that at least three men who worked on the control job last year would submit a bid on this basis if the opportunity were available.

7. Aerial photos of the area be obtained prior to the initiation of spotting, using panchromatic film plus a "G" filter. Photos of the infested area should aid considerably in both the initial spotting of infested trees and in the subsequent location of these trees for treatment.

DISCUSSION

Since sugar pine remains green for some time after attack the ability to recognize infested but non-faded trees on this job is especially important. It was observed that no currently infested trees were faded at the time of the appraisal survey. The spotting crews must be well trained to recognize evidence of current infestation from pitch tubes alone. The Berkeley Laboratory is prepared to detail an experienced man to the job to help plan and supervise control work and assist in training spotters as needs require. The Laboratory will also evaluate the results of control work undertaken.

By: R. C. Hall, Entomologist
and
M. M. Furniss, Forester

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TABLE I

ESTIMATE OF CONTROL NEEDS FOR 1952

Ownership	Acres	No. Infested Trees	Estimated Cost Spotting	Treating	Total
Private	840	520 ± 130	$1260	$2380	$3640
U.S.F.S.	640	396 ± 100	960	2900	3860
All	1480	916 ± 230	$2220	$5280	$7500

SPRAY MATERIALS NEEDED

Ownership	Ethylene dibromide (Bromofume 85)	Diesel Oil
Private	46 gallons	1775 gallons
U.S.F.S.	35 gallons	1350 gallons
All	81 gallons	3125 gallons

ESTIMATED SPOTTING TIME

It is estimated that a 3-man spotting crew can spot about 32 acres per crew day.

Ownership	Acres	Crew Days to Spot
Private	840	26
U.S.F.S.	640	20
All	1480	46

ESTIMATED SHARING OF COST 1/

Private Land		Cost
Private Owners		$ 910
Calif. State Division of Forestry		1820
Pest Control Funds - U. S.		910
	Total	$ 3640
Federal Land		
U.S.F.S. - Pest Control Funds		$ 3860
Total all Ownerships		$ 7500

1/ Assuming that the number of infested trees on private and Federal lands is proportional to the acreage of that ownership.

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
BERKELEY FOREST INSECT LABRATORY

MIAMI CREEK PROJECT

MADERA AND MARIPOSA COUNTIES, CALIFORNIA
MT. DIABLO MERIDIAN

LEGEND
Yosemite Mtn. Ranch Ownership
Yosemite Nat'l Park Boundary

SCALE
0 1/2 1 2 mi.

PROJECT BOUNDARY
DIVISION BETWEEN STATE & U.S.F.S. ADMINISTRATION
AREA TO BE SPOTTED

SOUTHGATE ENTRANCE
Big Creek
Yosemite Nat'l Park
14
13
State Hwy. 41
T.5S.
HOGAN MOUNTAIN
22
23
24
YOSEMITE MTN. RANCH
FISH CAMP
BM 5925
AREA B
28
27
26
25
HOGAN RANCH
State Hwy. 41
32
33
34
35
36
WESTFALL R.S.
Ten Mile Road
4
3
2
1
SUGAR PINE
CAMP TIMBERLOFT
BM 5260
PILOT PEAK
5373
SILVER KNOB
Miami Creek
AREA A
Lewis Creek
State Hwy. 41
Carter Creek
8
9
10
11
12
CEDARBROOK
R.21 E.
T.6S.
1/3/52 V.A.W.